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Determinants of Profitability of Public Sector Banks in India: A Study

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Abstract

Capital is one of the factors which invigorate the economic development of a nation. Capital is the consequence of investment. Higher the investment, higher is the growth of economy. Today, most of the Indian banks can boast of moving progressively towards international benchmarks in terms of accounting standards, transparency, profitability and compliance with other important international norms. It is also to the credit of these banks, and the regulatory and supervisory climate that the Indian financial system by the large proved immune to the spate of recent contagions. As a result of reforms, attempts are now visible to right size of the operations, tone up the functional skills and build up a cushion against possible shocks from within and overseas. In this paper the enumerator has been using secondary data includes 10 years period i.e., from 2014 to 2023 among 12 Public Sector Banks in India. For analysis of the secondary data, using Regression analysis by using both independent and dependent variables. The main theme of this paper is to identify the various determinants on profitability of the Public Sector Banks by using various variables in India. The present project finding that Current Asset ratio is a critical factor across all models, positively affecting Net Interest Margin and Return on Equity but negatively impacting Return on Investment and having a positive but less significant effect on Return on Assets. In case of operational efficiency have calculated on the basis Metrics like profit per employee are crucial for improving ROE. Another finding that-inflation dimensions- It generally has a negative impact across all models, particularly significant in Net Interest Margin and Return on Investment

Keywords: Profitability, determinants, ROI, ROA, ROE, NIM and Banks.

Intro duction

Capital is one of the factors which invigorate the economic development of a nation. Capital is the consequence of investment. Higher the investment, higher is the growth of economy. The rate of investment is directly proportional to the savings of the general public. It is in regard of mobilizing people's savings the financial institutions come into play a very important role. Among the financial entities, commercial banks are the predominant financial intermediaries. Commercial banks are the kingpin of all economic activities.

The growing importance of these banks is reflected in business, agriculture and industries in India. These banks are most important in terms of their strength and sweep among the financial institutions. It is well recognized that the commercial banks are instrumental in shaping the economic destiny of a country. They are considered as the nerve centres of economic and finance of a nation and the parameters of its economic prospective. The role of commercial banks in achieving balanced regional development can hardly be over emphasized. They help in this direction by suitably designing their policies in favour of backward and unbanked areas. By opening their branches in backward areas, banks make credit facilities available to the disadvantage sectors. Also, the funds collected from developed regions, may be channelised for investment in underdeveloped regions of the country. Since the banks have stupendous investment potential, they can make a significant contribution in eradicating poverty and unemployment and can bring about a progressive reduction in inter-regional/state, intersectoral and inter-personal disparities.

Review of literature

Kumar and Kumar (2021) carried out, a research study titled Impact of Covid-19 on Indian Economy with Special Reference to Banking Sector: An Indian Perspective, demonstrates overview of the impact of Covid-19 situation on Indian economy and its banking sector and also analyses the various policy measures taken by Reserve Bank of India and Indian Government at centre level and state level to improve the current economic situation of the country.

Virender Koundal (2022) he takenup a study on assessing the efficienty and profitability fo different segments of Indian banks, including public sector, old private sector, new private sector, and foreign sector banks. The study found that foreign-owned banks exhibit higher efficiency on average, new banks are more efficient than old ones, and smaller banks show global efficiency while larger banks demonstrate local efficiency. Public sector banks are found to be less profitable compared to other sectors. It is further concluded from this paper that increasing productivity is crucial for enhancing profitability in the banking sector, suggesting a need for improvements in efficiency across all segments.

Koundal (2022) the study found that Performance of Indian Banks in Indian Financial System. The methodology has used like secondary data analysis using ratio analysis method. The study found that public sector banks are less profitable and it can be concluded from the study that efficiency and profitability are interrelated. Hence, to increase profitability of public sector banks to tackle challenges.

Foglia et al (2022) explain that the Dynamically, we find that volatility connection increased during crises, peaking at the time of Covid-19. The study emphasises

the importance of large banks in volatility transmission, emphasising the banking system's "too-big-to-fail" trait. Small-medium banks, on the other hand, are key contagion actors, reinforcing the theory that the Eurozone banking system is too interconnected to fail. Finally, we show how the COVID-19 epidemic has created heterogeneity among Eurozone banking institutions. This heterogeneity impact could be a future source of financial instability within the Eurozone.

Babu et al (2023) they taken up a study on factors determining financial performance of public sector banks in India. In their study they used Multiple linear regression correlation, and ANOVA. According to their study found that Banks asset size, cost to income, net non-performing assets negatively impact profitability. This study concluded that the financial system has grown beyond national borders and marketing has shifted focus from just excelling in customer service.

Objectives

- To understand the Financial Institutions and its importance in India
- To identify the factors influencing Profitability in Public Sector Banks.

Scope of the Study

The present paper is based on the secondary data only and the study period from 2014-2023 based on RBI bulletin about public sector banks. The enumerator has focused on profitability of Public Sector Banks by influencing factors in India.

Research Design

The entire study is depends on secondary data, The data collected from 12 selected Public Sector Undertaking Banks from various aspects, and the data collected from the RBI bulletin, and internet sources. The period of the study is 10 years, i.e., 2014-2023.

Variables identified and incorporated

Dependent variable	Independent variables
➢ Return on Equity ➢ Return on Assets ➢ Return on Investment ➢ Net Interest Margin	➢ CAR ➢ Total Assets ➢ Profit per Employee ➢ Net Income ➢ CDR ➢ NNPA ➢ Inflation Rate ➢ Interest Rate ➢ Exchange Rate ➢ GDP Growth Rate

Descriptive statistics

For analysis of the secondary data- Mean, F-Statistics, Regression, R-Squared and Standards Deviation will be used in this study.

Results and Discussions

Table 1

Details of identify the factors influencing profitability in public sector banks

Variable	Impact on ROE	Statistical Significance (ROE)	Impact on ROA	Statistical Significance (ROA)
CRDR	Positive	Moderately Significant	Positive	Moderately Significant
PPR	Positive	Highly Significant	Positive	Highly Significant
CAR	Positive	Moderately Significant	Positive	Moderately Significant
NNPA	Negative	Not Significant	Negative	Not Significant
CADR	Positive	Not Significant	Positive	Not Significant
CD	Positive	Not Significant	Positive	Moderately Significant
INFR	Negative	Not Significant	Negative	Not Significant
INTR	Positive	Not Significant	Positive	Moderately Significant
EXR	Positive	Not Significant	Positive	Not Significant

Table 2

Dependent Variable: ROE
Method: Panel Least Squares
Date: 08/28/24 Time: 15:49
Sample: 2014 2023
Periods included: 10
Cross-sections included: 17
Total panel (unbalanced) observations: 155

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-87.15902	19.94783	-4.369349	0.0000
NET NPA	-0.002235	0.000194	-1.210253	0.2282
GROSS NPA	3.56E-05	9.66E-05	0.369071	0.7126
TOTAL ASSETS	-1.96E-05	9.62E-06	-2.032970	0.0439
EARNINGS	0.000298	0.000141	2.108804	0.0367
CASH DEPOSIT RATIO	0.323753	0.293965	1.101330	0.2726
CREDIT DEPOSIT RATIO	0.629188	0.101943	6.171951	0.0000
INVESTMENT DEPOSIT RATIO	0.070561	0.148895	0.473898	0.6363
PROFIT PER EMPLOYEE	0.886281	0.079213	11.18883	0.0000
CAR	2.024861	0.352331	5.747049	0.0000
RATIO OF NET NPA TO NET ADV...	-0.375112	0.305670	-1.227181	0.2218
GDP RATE IN	0.089089	0.189536	0.364519	0.7160
INFLATION RATE IN	-78.77241	64.82618	-1.215133	0.2264
INTERREST RATE IN	78.04243	89.81763	0.868899	0.3864
EXCHANGE RATE	0.204451	0.154489	1.323401	0.1879

R-squared	0.817317	Mean dependent var	-0.783448
Adjusted R-squared	0.799048	S.D. dependent var	17.63292
S.E. of regression	7.904424	Akaike info criterion	7.064488
Sum squared resid	8747.188	Schwarz criterion	7.359013
Log likelihood	-532.4978	Hannan-Quinn criter.	7.184117
F-statistic	44.73949	Durbin-Watson stat	1.953894
Prob(F-statistic)	0.000000		

Model Summary

According to the above 12 banks performance discloses by using both independent and dependent variable. After calculation of the raw data, the results were found that 81.73 per cent (R- -square value) of the variability in Return on Equity under this model.

- R-squared = 0.817317: Indicates that about 81.73% of the variability in ROE is explained by the model.
- Adjusted R-squared = 0.799048: Adjusted for the number of predictors, still quite high.
- F-statistic = 44.73949 (Prob = 0.000000): The model is statistically significant.

Table 3

Dependent Variable: ROA
Method: Panel Least Squares
Date: 08/28/24 Time: 15:49
Sample: 2014 2023
Periods included: 10
Cross-sections included: 17
Total panel (unbalanced) observations: 155

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.962477	1.032032	-3.839490	0.0002
NET NPA	-1.68E-05	1.00E-05	-1.679482	0.0953
GROSS NPA	6.25E-06	5.00E-06	1.250346	0.2133
TOTAL ASSETS	-7.64E-07	4.98E-07	-1.535059	0.1270
EARNINGS	1.06E-05	7.30E-06	1.450654	0.1491
CASH DEPOSIT RATIO	0.023350	0.015209	1.535327	0.1270
CREDIT DEPOSIT RATIO	0.032251	0.005274	6.114849	0.0000
INVESTMENT DEPOSIT RATIO	-0.006422	0.007703	-0.833620	0.4059
PROFIT PER EMPLOYEE	0.058644	0.004098	14.30975	0.0000
CAR	0.108686	0.018228	5.962467	0.0000
RATIO OF NET NPA TO NET ADV...	-0.004315	0.015814	-0.272876	0.7854
GDP RATE IN	0.001492	0.009806	0.152155	0.8793
INFLATION RATE IN	-5.206505	3.353883	-1.552381	0.1228
INTERREST RATE IN	4.296860	4.646855	0.924681	0.3567
EXCHANGE RATE	0.006460	0.007993	0.808189	0.4204

R-squared	0.860510	Mean dependent var	-0.018710
Adjusted R-squared	0.846561	S.D. dependent var	1.043999
S.E. of regression	0.408948	Akaike info criterion	1.141307
Sum squared resid	23.41335	Schwarz criterion	1.435832
Log likelihood	-73.45127	Hannan-Quinn criter.	1.260936
F-statistic	61.68976	Durbin-Watson stat	1.976159
Prob(F-statistic)	0.000000		

Model Summary:

The above table discloses that the Return on Assets. It can be found from the table analysis that the R-squared value is 0.860510 and it indicates that 86 per cent of the variability in Return on Assets through this model. It is further discloses that the adjusted for the number of predictors in the model were found slightly lower than R-squared according to this model. In case of f-statics value were noticed that 61.68976 is proved statistically significant.

Table 4

Dependent Variable: NIM
Method: Panel Least Squares
Date: 08/28/24 Time: 15:50
Sample: 2014 2023
Periods included: 10
Cross-sections included: 17
Total panel (unbalanced) observations: 155

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.254847	0.828528	0.307590	0.7589
NET NPA	1.00E-05	8.05E-06	1.245626	0.2150
GROSS NPA	-7.40E-06	4.01E-06	-1.845476	0.0671
TOTAL ASSETS	-1.88E-07	3.99E-07	-0.469831	0.6392
EARNINGS	4.57E-06	5.86E-06	0.779704	0.4369
CASH DEPOSIT RATIO	0.038157	0.012210	3.125092	0.0022
CREDIT DEPOSIT RATIO	0.016765	0.004234	3.959448	0.0001
INVESTMENT DEPOSIT RATIO	0.010081	0.006184	1.630021	0.1053
PROFIT PER EMPLOYEE	0.003859	0.003290	1.172979	0.2428
CAR	0.042751	0.014634	2.921350	0.0041
RATIO OF NET NPA TO NET ADV...	-0.030307	0.012696	-2.387139	0.0183
GDP RATE IN	-0.005742	0.007872	-0.729356	0.4670
INFLATION RATE IN	-4.816241	2.692539	-1.788736	0.0758
INTERREST RATE IN	-0.254773	3.730552	-0.068294	0.9456
EXCHANGE RATE	0.003446	0.006417	0.537038	0.5921

R-squared	0.389274	Mean dependent var	2.289398
Adjusted R-squared	0.328202	S.D. dependent var	0.400555
S.E. of regression	0.328308	Akaike info criterion	0.702038
Sum squared resid	15.09008	Schwarz criterion	0.996563
Log likelihood	-39.40792	Hannan-Quinn criter.	0.821667
F-statistic	6.373959	Durbin-Watson stat	1.868176
Prob(F-statistic)	0.000000		

Model Summary:

The table discloses that the relationship between dependent variables and independent variables and R-squared value is 0.389274 it indicates that 39 per cent of the variability in case of dependent variables, i.e., NIM under this model. It is further discloses that the adjusted R-square value is 0.328202. This value is lower than R-squared value and it is accounted for the number predictors. Finally it can be concluded that the overall model is statistically significant by observing F-statistics value (6.373959).

- R-squared = 0.389274: Indicates that about 39% of the variability in NIM is explained by the model.
- Adjusted R-squared = 0.328202: Lower than R-squared, accounting for the number of predictors.
- F-statistic = 6.373959 (Prob = 0.0000): Shows that the overall model is statistically significant.

Table 5

Dependent Variable: ROI
Method: Panel Least Squares
Date: 08/28/24 Time: 15:49
Sample: 2014 2023
Periods included: 10
Cross-sections included: 17
Total panel (unbalanced) observations: 155

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.240890	1.324879	6.220110	0.0000
NET_NPA	7.75E-06	1.29E-05	0.601645	0.5484
GROSS_NPA	-1.35E-06	6.41E-06	-0.211102	0.8331
TOTAL_ASSETS	9.03E-07	6.39E-07	1.413507	0.1597
EARNINGS	-1.36E-05	9.37E-06	-1.456178	0.1478
CASH_DEPOSIT_RATIO	0.029945	0.019524	1.533735	0.1274
CREDIT_DEPOSIT_RATIO	0.015336	0.006771	2.265077	0.0250
INVESTMENT_DEPOSIT_RATIO	-0.055418	0.009889	-5.603855	0.0000
PROFIT_PER_EMPLOYEE	-0.002947	0.005261	-0.560199	0.6156
CAR	-0.138645	0.023401	-5.924816	0.0000
RATIO_OF_NET_NPA_TO_NET_ADV...	-0.011415	0.020302	-0.562256	0.5748
GDP_RATE_IN	0.006535	0.012588	0.519151	0.6045
INFLATION_RATE__IN__	-2.856591	4.305572	-0.663464	0.5081
INTERREST_RATE_IN__	8.044589	5.965434	1.348534	0.1797
EXCHANGE_RATE	0.012814	0.010261	1.248830	0.2138

R-squared	0.479900	Mean dependent var	7.257299
Adjusted R-squared	0.427890	S.D. dependent var	0.894082
S.E. of regression	0.524990	Akaike info criterion	1.640889
Sum squared resid	38.58597	Schwarz criterion	1.935414
Log likelihood	-112.1689	Hannan-Quinn criter.	1.760518
F-statistic	9.227064	Durbin-Watson stat	2.166128
Prob(F-statistic)	0.000000		

Model Summary:

According to the table statistical data regarding the profitability of public sector banks in India during the period form 2014- to 2023. It is found that the R-square value is 0.479900 it is indicates that 47.99 per cent of the variability in Return on Investment by using this model. After calculation of adjusted R-squared the value is 0.427890 it is slightly lower than R-squared. While F-statistic is 9.227064 it is indicates that this model is positive significant manner.

- R-squared = 0.479900: Indicates that about 47.99% of the variability in ROI is explained by the model.
- Adjusted R-squared = 0.427890: Adjusts for the number of predictors, slightly lower than R-squared.
- F-statistic = 9.227064 (Prob = 0.000000): Shows that the overall model is statistically significant.

Findings and Contribution

- CAR's Dual Role: CAR is a critical factor across all models, positively affecting NIM and ROE but negatively impacting ROI and having a positive but less significant effect on ROA.
- Operational Efficiency: Metrics like profit per employee are crucial for improving ROE.
- Inflation: It generally has a negative impact across all models, particularly significant in NIM and ROI.

Suggestions

- According to the above findings, both private and public sector banks will be reach maximum profitability where they adopt following determinants likes, Total Assets, Profit per Employee, Net Income, CDR, NNPA, Inflation Rate, Interest Rate, Exchange Rate, and GDP Growth Rate etc.
- The study found that CAR is a critical factor across all models, positively affecting NIM and ROE but negatively impacting ROI and having a positive but less significant effect on ROA.

Conclusions

Based on the results it can be conclude that the profitability of the Public Sector Banks in India is depending various factors like Total Assets, Profit per Employee, Net Income, CDR, NNPA, Inflation Rate, Interest Rate, Exchange Rate, and GDP Growth Rate. And also further concluded that ROA is less significant and ROI is negative impact on public sector banks. Based on the study that, Regulatory frame work also helpful to improve the profitability of public sector under taking banks as well as private banks in India.

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